

## MEAL-EQUIVALENT FOOD BAR

### BACKGROUND OF THE INVENTION

~~The invention is in the field of ready-to-eat food bars, and~~  
more particularly, meal-substitute food bars.

The prior art reveals many alternative types of food bars which provide nutrition as snacks, meal supplements, or meal substitutes. The ingredients are selected and processed for desired food bar characteristics, formed in cylindrical or rectangular shapes, finally processed, and packaged to provide portable convenience in handling and eating.

Well-known examples include:

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~~Cake and Candy bars such as: BABE RUTH (TM), a solid  
 cyclindrical bar of continuous aggregate ingredients coated  
 with a layer of chocolate; MOUNDS (TM), disconnected coated  
 segments of a cored rectangular bar; and CADBURY CHOCOLATE  
 (TM), a rectangular bar divided into a grid of  
 frangibly-connected portions; OLEO (TM) cookies, a sandwich  
 of wafers and creamy center; and~~

Dietary bars, which provide ingredients for normal or  
 special diets, and feature dietary proportions of  
 carbohydrates, proteins, and fats, plus vitamins, minerals  
 and functional additives. Examples include: Diabetic bars  
 low in sugar, salt, and animal fat; Energy bars high in  
 sugar, and Body-Building bars high in protein.

Dietary food bars have ingredients to help health problems  
 such as heart, diabetes, and overweight conditions. Diets  
 include those recommended by the American Heart Association  
 (AHA), American Diabetes Association (ADA), Dr. Atkins, and  
 Dr. Sears. The AHA and ADA diets suggest calorie  
 proportions: 55% Carbohydrate, 15% Protein, and 30% (or  
 less) Fat, with low sugar and salt, high fiber, and smaller  
 meals more often in a day. The Sears and Atkins diets  
 suggest less carbohydrate.

Further, the U.S. Food and Drug Administration (FDA)  
 suggests total daily calories of 2000 for men, and 1600 for

women, less for weight loss and the elderly, and more for the very active. A "meal" may be defined as 25% of the daily nutrition requirements.

The prior art also reveals adding flavors to the food bars to improve taste.

In view of the above background, the following prior art patents are cited as pertinent, revealing a variety of useful techniques in making and using food bars. Comments are included to point out their relevance and divergence with respect to critical features of this invention:

[1] Patent No. 2,634,210, Kimball, F.T., issued April 7, 1953, teaches a rectangular chocolate bar with two layers to separate incompatible components, and with frangible transverse scored lines.

[2] Patent No. 2,538,202, Kimball, F.T., issued January 16, 1951, teaches a two-layer chocolate bar in cylindrical disc shape, in which a chocolate outer layer enrobes the core inner layer. The layers separate incompatible ingredients. Other essential ingredients are suggested if the food bar is to be the sole diet for a considerable time.

[3] Patent No. 6,143,335, McKenzie, R. G., issued November 7, 2000, teaches scoring a food bar into bite-sized pieces

thus providing a method for delivering exact quantities of supplemental ingredients to animals or humans.

[4] Patent No. 5,906,833, Klatz, R.M., issued May 25, 1999, teaches a dietary supplement food bar in plural parts which are chronologically appropriate for consumption.

[5] Patent No. 4,820,533, Seaborne, et al, issued April 11, 1989, teaches composition and manufacture of an edible barrier laminate to separate different food phases.

[6] Patent No. 4,451,488, Cook, M.L., issued May 29, 1984, teaches composition and manufacture of a soft and chewy granola bar by adding polyhydric alcohols.

[7] Patent No. 4,496,606, Michnowski, J., issued January 29, 1985, teaches composition and manufacture of a dietetic snack-bar with high fiber guar gum for a Type II diabetic.

[8] Patent No. 6,159,506, Bieser, A.H., issued December 12, 2000, teaches folic acid in a food supplement to help quell stressful attacks on normal physiological and psychological functioning.

[9] Patent No. 6,207,638, Portman, R., issued March 27, 2001, teaches a nutritional composition which enhances

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## SUMMARY OF THE INVENTION

The invention is an improved meal-substitute food bar, called herein a meal-equivalent food bar because it is divided into segment portions which are equivalent to the courses of a conventional meal: appetizer, main-course, and dessert. The appetizer segment may include functional ingredients to stimulate appetite, the main-course segment includes the major nutrients of the meal, and may include functional ingredients which transition to the dessert segment which may include functional ingredients to depress or satiate appetite.

Further, the inventive food bar is divided frangibly into length-wise strips, each strip a meal-equivalent containing a selectable predetermined value of calories.

Thus it is an object of the invention to provide a meal-equivalent food bar, with segments which provide both gourmet variety and appetite control, thereby improving the physiological and psychological support of the food bar.

It is a further object of the invention to provide a dietetic meal-equivalent food bar which is made to provide proper nutrient values for a normal diet or a special diet, and allows the consumer to select the meal with a predetermined value of calories, thereby improving the consumer's caloric control.

A further object of the invention is to provide a meal-equivalent food bar of size, weight and format to be manufactured and packaged for portage in an ordinary pocket of clothing or baggage, and convenient eating.

#### BRIEF DESCRIPTION OF THE DRAWING

The single drawing shows a perspective view of the food bar in one rectangular form embodiment.

#### DETAILED DESCRIPTION OF THE INVENTION

One embodiment of the invention is seen in the drawing, where a rectangular meal-equivalent bar (1) is shown apportioned by transverse dividers (2) and (3) into segments which correspond to the courses of a conventional meal: appetizer (4), main-course (5), and dessert (6). The lengthwise divider (7) separates the meal bar into two strips (8) and (9), each strip a meal-equivalent selectable for a pre-determined total number of calories. The main-course segment (5) is shown with laminations (10) which may form a sandwich and/or side-dish system, while segments (4) and (6) may be a mixture aggregate.

Referring to the drawing, the transverse dividers (2) and (3) may be: scored lines marking the segments, or segment connectors of edible binder material, or segment barriers of edible or inedible material. The strip divider (7) is a frangible junction which may be a deeply scored line or weak edible-binder connector.

Not shown in the drawing are markings and/or colors on the bar to identify segment ingredients and strip calories, and improve appeal.

Details of ingredients and manufacture for one embodiment are described in the example below.

## EXAMPLE: OAT-SOY MIX

sub c2> ~~This example is designed to approximate a meal-equivalent in a rectangular food bar format: 1 1/2 inches wide, 3/4 inch high, and 5 inches long; 3 ounces; and 500 total calories in a 50-15-30 (%cal) distribution. The (vegetarian) ingredients are:~~

Rolled Oats	70g(grams)
Oat Bran	7g
Soy Protein Isolate	7g
Vegetable Oil	8g
Dried vegetables	20g
Vinegar	4g
dried-apple	10g
edible gum	1g
quinine	20mg

The rolled oats and bran are mixed with the soy protein to form the bar-common material of oat-soy (84g), to which the segment-appropriate ingredients will be added. The oat-soy mix is divided into portions: a quarter for the appetizer segment, half for the main-course, and quarter for the dessert. The vegetable oil is divided to mix 4g with the appetizer and 4g with the main-course. The vinegar is added to the appetizer. The dried vegetables are mixed with 0.5g of the edible gum and added to the main-course. The



remaining edible gum and quinine is mixed with the dried apple and added to the dessert portion. Sufficient water is added to each segment portion to form a pliable dough. Then the segments are formed, strip-divided, and baked (separately, or joined using an edible binder which may be a paste of protein isolate, starch, and water), and so packaged.

Note 1: Ingredients for appetite-stimulants may include high-fat and sour taste (eg: oil and vinegar); appetite-depressants may include low-fat, fiber, and bitter taste (eg: starch, edible gum, and quinine).

Note 2: For balanced nutrition, the oat-soy combination provides essential protein-amino-acids, and provides carbohydrates of sugar, starch, and fiber; the vegetable oil provides a balance of saturated and unsaturated fatty acids.

Note 3: Alternative or additional ingredients may be carbohydrates derived from other grains, fruits, and vegetables; with proteins derived from nuts, beans, eggs, cheese, meat, fish, and fowl. Soluble and insoluble fiber sources include apples, potatoes, and gum plants. Vitamins, minerals, and other additives may be included.

With these teachings, the meal-equivalent food bar can be the basis of a method for improving the dietary support of